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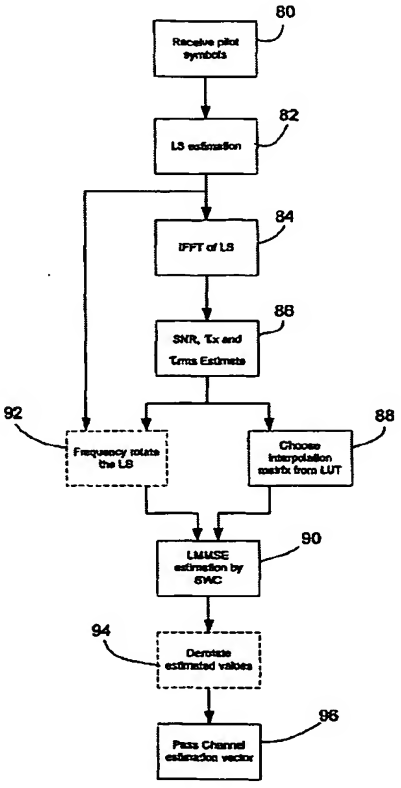
(54) Title: CHANNEL ESTIMATION FOR OFDM SYSTEMS



(57) Abstract: A method for performing channel estimation in an orthogonal frequency-division multiplexing system, the method including the steps of: receiving (80) transmitting pilot symbols from a plurality of transmit antennas; forming (82) a least-squares estimation matrix from the transmitted pilot symbols; forming (84-88) a sparse smoothing matrix approximating a fixed weighting matrix, wherein each row vector in the sparse smoothing matrix contains one or more of the strongest weights in each row of the fixed weighting matrix; and (90) deriving a channel estimation matrix from the sparse smoothing matrix and the least-squares estimation matrix.

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